DEFECTS *of* SPEECH

THEIR NATURE & THEIR CURE

BY

IDA C. WARD

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DEFECTS OF SPEECH

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IDA C. WARD

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PREFACE

This little book is intended primarily for teachers who are likely to come across cases of speech defects among their pupils. Such defects, though baffling to the uninitiated, are comparatively easy to correct, if the teacher has a knowledge of the functions of the organs of speech in the production of English sounds. To provide in not too technical language the requisite knowledge for these corrections, is the object of this book. It does not pretend to be an exhaustive treatment of the subject, but is rather suggestive of lines on which to work. It is the outcome of my practical experience in the treatment of speech defects.

A short chapter containing hints on the cure of stammering has been added. This subject, however, lies within the province of the doctor rather than that of the phonetician. The larger question of the correction of a provincial or vulgar accent is too big to come within the scope of this book, although the application of phonetic methods to this, as to the cure of speech defects, is the only sure way to success.

It is impossible to make any definite statement as to the length of time required for such treatments as are described here. Much depends

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on the intelligence and ability of the teacher and on the perseverance of the pupil. In every case the treatment is based on the endeavour to replace a bad method of speech, which has become habitual, by the correct method; it is therefore necessary to continue the treatment until the correct method itself has become habitual.

The main part of Chapter I. appeared as an article in *English*, March 1922, and I have to thank the Editor for permission to use it here.

My thanks for the use of the diagrams are due to Professor Daniel Jones, whose help it is impossible for me to acknowledge adequately.

IDA C. WARD.

UNIVERSITY COLLEGE, LONDON.

PREFACE TO SECOND EDITION

A SHORT chapter on the causes of speech defects has been added, together with a note on the speech of mentally defective children, notes to Chapters III., IV. and V., and further notes on cases treated.

January 1929.

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LIST OF PHONETIC SYMBOLS USED IN THIS BOOK WITH THEIR EQUIVALENTS IN ORDINARY SPELLING

The symbols are those of the International Phonetic Association.

N.B.—In every case where a symbol is used, the *sound* and not the name is indicated.

VOWELS

iː	as in	s*ee*
ɪ	,,	b*i*t ①
e	,,	b*e*d
æ	,,	b*a*d 2
ɑː	,,	c*a*lm
ɔ	,,	n*o*t 4
ɔː	,,	*a*ll
ʊ	,,	p*u*t 5
uː	,,	r*u*de
ʌ	,,	d*u*st
əː	,,	b*ir*d
ə	,,	*a*bout

DIPHTHONGS

eɪ	as in	pl*ay* 3
oʊ	,,	g*o*
aɪ	,,	h*i*gh
ɑʊ	,,	n*ow*
ɔɪ	,,	b*oy*
ɪə	,,	h*ere*[1]
ɛə	,,	th*ere*[1]
ʊə	,,	p*oor*[1]

CONSONANTS

p	as in	*p*ay 6
b	,,	*b*ig 7
t	,,	*t*en 15
d	,,	*d*og
k	,,	*k*ing
g	,,	*g*o
m	,,	*m*et 8
n	,,	*n*et
ŋ	,,	si*ng*
l	,,	*l*ong
ɫ	,,	litt*l*e 9
f	,,	*f*ar
v	,,	*v*ery
θ	,,	*th*in 10
ð	,,	*th*en
s	,,	*s*ing 11
z	,,	*z*eal
r	,,	*r*un 12
ʃ	,,	*sh*ow 14
ʒ	,,	plea*s*ure
t͡ʃ	,,	*ch*ur*ch* 16
d͡ʒ	,,	*j*u*dg*e
j	,,	*y*es
w	,,	*w*ill

ʔ (glottal stop, see p. 18)

---

[1] When the *r* is not sounded.

DEFECTS OF SPEECH

CHAPTER I

SPEECH DEFECTS

The term "speech defects" is applied to those mispronunciations which are due either to malformation or to wrong use of the organs of speech. With the former we are not here concerned, unless the malformation can be rectified by a surgical operation (as in the case of a cleft palate), but the other defects, which are generally the result of faulty childish habits that have not been corrected, can and should be cured.

Every school teacher occasionally meets with cases of indistinct articulation, and of the wrong pronunciation of certain sounds, such as *s* and *r* sounds. Generally he recognises that something is wrong, but cannot determine exactly where the fault lies, and he makes attempts, often ineffectual, at curing it by imitation. I have come across cases where a pupil who mispronounced *s* and *r* sounds was merely given lists of words containing these sounds, which he then pronounced over and over again in his own faulty way Obviously such a method is worse than useless. Another way of dealing—or rather not dealing—with these mispronunciations is, without examination or adequate tests, to attribute them to malformation—to say that the tongue is too long, too thick or tied, that the palate is too high, etc.—the alleged malformation often being incapable of accounting for the particular defect. And I have even come across a student in a training college who had a faulty *s* of a particularly noticeable variety, which was put down to the fact that her back teeth were too short, and which her former teacher of elocution said "didn't matter"!

I have known pupils who were stated to have a cleft palate—one had indeed all the peculiarities of speech that usually result from a cleft palate—when on examination it was found that there was no physical deformity. In five minutes one girl of fourteen or fifteen who spoke as if she had cleft palate was made to say correctly words like "assassin," this fact alone proving that her palate was perfect.

Another girl, with an ordinary lisp (the substitution of [θ] for [s]), was told that the muscles of the back of the tongue were too weak to allow her to pull the tongue back from between the teeth for [s], and she was given exercises for depressing the back of the tongue. But she had no difficulty in making [t] and [ʃ], both of which require the tongue to be pulled back as much as [s].

Malformation accounts for a very small proportion of speech defects: most cases of wrong speech sounds are due to bad habits set up in childhood and not corrected.

The only way to remove these disabilities is to apply scientific methods. To attempt a cure, the teacher must have an exact knowledge of the formation of speech sounds, he must have a sufficiently trained ear to be able to recognise what the wrong sound is, and he must be able to make the wrong as well as the right sound. If he can do all these things, he is in a position to try to cure any mispronunciation.

Of these three qualifications, he can obtain the first from books and lectures on phonetic theory: this, together with careful observation of his own speech organs, will teach him how the sounds of English are formed. The other two it is impossible to get from books or lectures. A course of carefully graded ear-training exercises is essential if the teacher is to be able to recognise without difficulty the wrong sounds his pupils make. Such ear-training exercises should form part of any course of phonetics, for students who are intending to undertake the correction of pronunciation. The third requirement—that the teacher should be able to make the wrong as well as the right sounds—involves considerable practice in the making of speech sounds. Generally speaking, defects of pronunciation consist in replacing one sound by another; the wrong sound used may or may not occur in ordinary English, but it is usually to be found in some other language. And to be able to make and recognise it, the teacher must have practice under a competent instructor in making non-English as well as English sounds.

When the teacher is able to recognise the wrong sound and to make it, and when he knows the exact position of the organs of speech for the right sound, he will be able to use his knowledge and practical ability to devise exercises for obtaining the particular sound he wants. Some of these exercises he may find in books, but he will not find all speech defects dealt with in books, and there are remarkably few which treat the subject at all. He may have to make up for himself exercises suitable for overcoming the particular defect he is treating. The methods he uses will depend largely on the intelligence and will power of his patient, for it would be of little use telling a small child how his tongue should be placed, whereas a grown-up pupil may find such information of value.

It is often possible, by the application of scientific methods, to obtain in a few minutes sounds which have been wrongly pronounced for years. This does not by any means complete the "cure," which is, in point of fact, only just begun; but the most important thing is achieved—it has been proved that the pupil *can* pronounce the sound which he has always thought and said he could not, and by means of carefully graded exercises, conscientiously practised, it is possible eventually to effect a complete cure.

CHAPTER II

INDISTINCT ARTICULATION

Most people, at some time or other, have suffered from speakers and preachers who could not make their words carry to the far end of a fair-sized room. The reason is often not so much lack of voice as lack of clear articulation, and the hearer who knows anything about this subject is irritated the more, because he realises that a little knowledge of the formation of speech sounds, and a little care, would make the speaker heard perfectly.

Many writers on voice production make the mistake of thinking that if good resonant vowels can be produced, the consonants will take care of themselves, and the speaker will have no difficulty in making himself heard. As far as his *voice* is concerned, this may be so. But whether his words are intelligible or not depends mainly on the consonants. It is the consonants which divide the words into syllables, and if these are pronounced in a slipshod manner, the vowel sounds seem to run into each other, and this causes indistinctness. The following sentence will show how easy it is to complete words when the vowels are left out, and how difficult when the consonants are omitted; and though the comparison between the results for eye and for ear is not a perfect one, it is true that if the consonants are badly pronounced the words are unintelligible, while if the vowels are obscured, however unpleasant the result may be, the words *can* be distinguished. A judicious attention to the clear articulation of consonants, therefore, is necessary for intelligible speech.

The sentence with consonants omitted:

Ordinary spelling. I a– –oi–– –o –o–– a– –e–o––o–– i– ––e –o––i––.

Phonetic spelling. aɪ æ– –oɪ– –u –ɑu– ə– –e–ə––ɔ– ɪ– –ə –ɔɪ–ɪ–.

The sentence with vowels omitted:

Ordinary spelling. – –m g––ng t– t–wn –t t–n –cl–ck –n th– m–rn–ng.

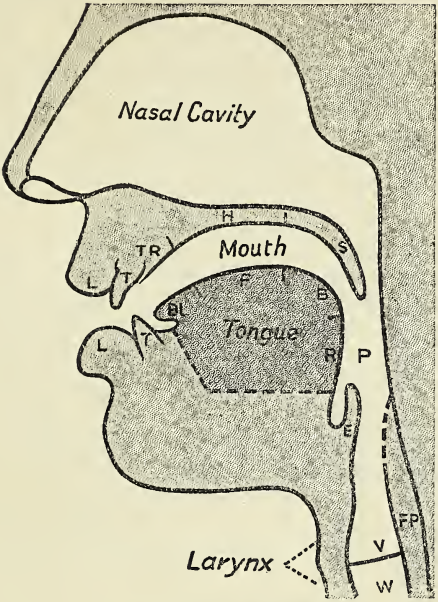
Phonetic spelling. –– –m g––ŋ t– t––n –t t–n –kl–k –n ð– m–n–ŋ.

A brief outline of the phonetics of English provides all the necessary material for the correction of faulty articulation.

It is essential, in the first place, for the student to know something about the organs of speech. A simple diagram showing them, with the names which he will find used later in the book, is all that is necessary for this purpose. The student is recommended to examine his mouth, and as far as he can, to try to realise what movements take place in making English speech sounds.[1]

---

[1] The sounds of normal speech are described in detail in Mr. Ripman's *Sounds of Spoken English, with Specimens,* and in his *Good Speech, an Introduction to English Phonetics,* published by Messrs. Dent and Sons.



THE ORGANS OF SPEECH

LL	LIPS	BL	BLADE OF TONGUE
TT	TEETH	F	FRONT OF TONGUE
TR	TEETH-RIDGE	B	BACK OF TONGUE
H	HARD PALATE	R	ROOT OF TONGUE
S	SOFT PALATE		

P	PHARYNX
E	EPIGLOTTIS
V	VOCAL CHORDS
W	WIND-PIPE
FP	FOOD-PIPE

Consonants

A consonant is a sound in which the air passing through the mouth is either stopped completely (*e.g.* [p] in "hoping," [t] and [d] in "steady") or forced through so narrow an opening that friction is heard (*e.g.* [z] in "busy," [f] and [v] in "fever").

All consonants can be pronounced with or without simultaneous vibration of the vocal chords. If the vocal chords are not vibrating, we have what are called *voiceless* (or breathed) consonants: *e.g.* [p, t, k; f, s, θ], etc. When the vocal chords are vibrating we have *voiced* consonants: *e.g.* [b, d, g; v, z, ð, l, n]. In English, as in most languages, there are pairs of consonants similarly articulated in the mouth, but differing in the action of the vocal chords. Such pairs are [t, d; k, g; s, z; θ, ð], etc. In this book where these pairs are used together, the first of each is the *voiceless* and the second the *voiced* consonant. There are certain consonants in which the voiced variety only is used: *e.g.* in English, [l, m, n, r]. It is possible, however, to make the voiceless equivalents of these, and the student will find this an excellent exercise to practise.

Consonants are classified according to:

(*a*) the organs of articulation,
(*b*) the manner of articulation.

(*a*) According to the organs of articulation we distinguish:

bi-labial (both-lip) consonants, made with both lips [p, b, m];

labio-dental (lip-teeth) consonants, made with the bottom lip against the top teeth [f, v];

dental (teeth) consonants, made with the tip of the tongue against the teeth [θ, ð];

alveolar (teeth-ridge) consonants, made with some portion of the blade or front of the tongue against or near the teeth-ridge [t, d, s, z, n, l, r];

palato-alveolar (hard-palate and teeth-ridge) consonants, made with the front of the tongue raised towards the teeth-ridge and the adjoining part of the hard palate [ʃ, ʒ];

palatal (hard-palate) consonants, made with the front of the tongue raised towards the hard palate [j];

velar (soft-palate) consonants, made by the back of the tongue against the soft palate or velum [k, g, ŋ];

glottal consonants, made with the vocal chords, the space between which is known as the glottis [ʔ, h].

(*b*) According to the manner of articulation we distinguish:

stops (or plosives), made by a complete closure of the mouth passage at some point, followed by an opening [p, b, t, d, k, g], also the glottal stop [ʔ] (see p. 18); all other consonants, in which the breath is not completely stopped, are *continuants*;

Continuants

fricatives, in which the passage at some point is narrowed, so that the escaping air makes a frictional sound [f, v, θ, ð, s, z, ʃ, ʒ, ɹ];

nasal consonants, where the mouth passage is closed at some point, and the air passes out through the nose [m, n, ŋ];

the *lateral* (or side) consonant [l], in which the air passes along the sides of the tongue, the middle passage being closed by the tip of the tongue against the teeth-ridge;

the *rolled* (or trilled) consonant [r], occurring only exceptionally in southern English, where the fricative [ɹ] is normal. For the sake of simplicity the symbol [r] will be used in this book to indicate *r* as ordinarily pronounced.

For the *semi-vowels* [w] and [j] see p. 17.

Clearness of articulation depends largely on the right formation of these consonants.

Stops

Stops consist of a complete closure of the mouth passage at some point, and the release of that closure. In the case of *voiceless* consonants, when the release is made, it is generally followed by a slight *h*:[1] in the case of *voiced* consonants, the release of the stop is followed by a vowel sound, either a slight [ə], or the sound of the following

---

[1] Before a stressed vowel some speakers utter the stop with so much force that this *h* sound becomes very noticeable. This should be avoided.

TABLE OF CONSONANTS

	Bi-labial	Labio-dental	Dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	ʔ
Nasal	m			n			ŋ	
Lateral				l			(ɫ)	
Rolled				r				
Fricative		f v	θ ð	s z ɹ	ʃ ʒ			h
Semi-vowels	w					j	(w)	

vowel; thus an exact phonetic representation of "rub" would be [rʌb^{ə}], while in "rubbing" release of the *b* would be followed immediately by the *i* of the following syllable [rʌbɪŋ].

[p] and [b] are made by the lips being pressed together; the air, compressed behind them, comes out with an explosion when the lips are opened. (See diagram 2 on p. 73.)

[t] and [d] are formed by a similar compression and subsequent release of the air, the stop being made in this case by the tip of the tongue against the teeth-ridge. (See diagram 3.)

[k] and [g] are made with the back of the tongue raised to touch the soft palate. (See diagram 4.)

In all these sounds, it is essential that the contact be firmly made, and that the release be quick, in order to obtain a clear-cut plosive. Speakers often make a weak kind of stop—*e.g.* in a word like "about," the lips only just touch for *b*, they are not pressed together before the release comes. I have heard the word "redemption" pronounced in such a manner that the *d* sounded like a kind of *r*, *i.e.* the tip of the tongue was not pressed against the teeth-ridge. The word "under" becomes [ʌnnə] if the *d* is not properly articulated.

One peculiarity in the English use of stops should be noted. When two stops follow each other, the first is not exploded, *i.e.* only the closure is made and the organs of speech immediately take up the position for the second stop before any release is made and any explosion heard. Students should observe how they pronounce a word like "doctor" [dɔktə], not [dɔkʰtə], *i.e.* the back of the tongue is raised to touch the soft palate and is *kept there* until the tip is raised to the teeth-ridge for the *t*, and the only explosion which is heard is that of the *t*. The same thing occurs in ordinary speech when one word ends with a plosive and the next begins with another: *e.g.* "a fat cat" [ə fæt kæt], "the last post" [ðə lɑːst poʊst].

When these stops occur in final positions, *i.e.* at the end of a group,[1] the release must be made, though it is quite unnecessary for clear speech that the *off-glide* (the [h] or [ə] following the release) should be very marked, which indeed produces an unpleasant effect. For instance, in "at last," the final *t* should be "released," the off-glide being a faint *h* [ət lɑːstʰ], but not [ət lɑːstə].

Similarly after a voiced stop, there should be only a faint vowel sound, *e.g.* [ɪn bedᵊ], not [ɪn bedə].

Nasal consonants

There is no difficulty in pronouncing these sounds [m, n, ŋ]. As in the case of stops, the contact of the articulating organs should be made firmly. (See diagrams 5, 6, 7.)

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[1] The unit of speech is not the word, *i.e.*, we do not pause after each word, but the group—several words closely connected in meaning, the sounds of which are uttered continuously, without intervening pauses. In "good morning" the *d* is phonetically not final—a term only applicable to a sound followed by a pause.

l sounds

There are two well-defined kinds of *l* sounds in English. In both the tip of the tongue is placed firmly against the teeth-ridge and the air escapes along the sides of the tongue. The sounds differ in the position of the rest of the tongue. Where *l* occurs before vowels, the front of the tongue is raised in the direction of the hard palate; when it occurs finally and before consonants, the front is slightly hollowed, and the back is raised towards the soft palate. The former is called the "clear l," and the latter, which has a somewhat obscure quality, is called the "dark l" [ɫ]. (See diagrams 8, 9.)

The articulation of *l* may be impaired through:

(*a*) *A lack of firm contact* of the tip of the tongue against the teeth-ridge, which will make the consonant more vowel-like. With some speakers—notably in the Cockney dialects—the contact is not made at all, and the result is a vowel, *e.g.* "railway" becomes [raɪowaɪ], the place of the *l* being taken by a kind of *o* vowel. Another example of this is the milkman's call of [mɪok] or [mɪo]. These are extreme cases, and noticeable because they occur in Cockney speech. This lack of firm contact, however, is a feature in the speech of many educated people, although to a less marked extent. In the sentence "Call for me at two," it is quite easy to say the word "call" without an [l] sound at all, *e.g.* [kɔː fəmi ət tuː]. If this habit is persisted in, it is likely to lead to indistinctness.

(*b*) *A too dark quality* in the *l*. In such a case the back of the tongue is drawn too far back into a position similar to that of the [ɔ] often heard in southern English, in such a word as "saw." (See diagram 9.) To rectify this mistake, the pupil should try to say [*l*] and [əː] (as in "bird") *at the same time.*

The two mistakes often occur together, the drawing of the tongue too far back being responsible for the weak or missing contact of the tip. Moreover, this last fault of a too dark [l] often influences the preceding vowel in such a way as to change its nature, *e.g.* a Cockney child pronounces the words "field" and "filled" in the same way—[fiɫd], with a very dark *l* and a lowered [ɪ] vowel, in the first word (instead of [iː]), as well as in the second; and the vowel [ʌ] (as in "but") becomes [ɔ] when followed by a too dark [l], [bʌlb] becomes [bɔɫ^{ə}b]. This tendency is to be observed in non-dialect speakers too, and it helps to obscure the pronunciation. It no doubt accounts for the fact that some actors and most elocutionists recommend a clear [l] on all occasions, even where in normal pronunciation we should have [ɫ]. Thus it is frequent on the stage in serious drama to hear "pale" pronounced as [peɪl^{i}] and "all" as [ɔːl^{i}], with a distinctly clear [l]. While this is unnecessary for clear speech, it is well to avoid a very dark quality in the [l].

Fricative consonants

If a speaker can pronounce the English fricative consonants [f, v; θ, ð; s, z; ʃ, ʒ; r], any indistinctness in their production is due to lazy articulation. The essential element of a fricative is that the mouth passage is so much narrowed at some point that the air passing through makes a fricative sound. It is possible, however, to make these sounds, particularly the *voiced* ones [v, ð, z, ʒ, r], with very little friction being heard. In such a case the passage is not very narrow, and there is not much breath force: *e.g.* in the words "busy," "ever," "very," "pleasure," "mother" [bɪzɪ, evə, verɪ, pleʒə, mʌðə], said in a lazy fashion, the [z] of "busy," the [v] of "ever," the [r] of "very," the [ʒ] of "pleasure," the [ð] of "mother" become extremely weak; no friction is heard and these consonants resemble a vowel, with the result that the words are obscured. If a speaker wants his words to carry clearly to some distance, it is essential that he should make friction in all these sounds, *i.e.* that the articulation should be vigorous, and that he should use considerable breath force.

In [f, v] the breath comes out between the bottom lip and the top teeth, or between the interstices of the teeth. The speaker should press the lip against the teeth, and in passing to the next sound should make the movement quickly. (See diagram 10.)

For [θ, ð] the tip of the tongue is placed behind the top teeth, generally so that the tip can just be seen. (See diagram 11.)

In [s, z, r] the tip of the tongue is raised so as almost to touch the teeth-ridge, leaving a narrow channel through which the air passes (See diagrams 12, 18.)

In [ʃ, ʒ] it is the blade of the tongue which is brought near to the back part of the teeth-ridge and the front of the hard palate. The air passes over a surface wider from side to side than in the case of [s, z]. (See diagram 13.)

There is little difficulty in making these consonants clear, and attention to such details as have been mentioned will do away with any indistinctness as far as fricative consonants are concerned.

The semi-vowels [w] *and* [j] *(as in "way" and "yes")*

These two sounds are called semi-vowels because they partake of the nature of both vowels and consonants. They are sounds of a gliding type, *i.e.* the organs of speech are placed in position for one vowel and immediately leave that position to pass to another vowel position. The first position is that of a *close* vowel, *i.e.* one in which the tongue is raised high towards the roof of the mouth; for [w] the tongue and lip positions are those of the close vowel [u], and for [j] those of the close vowel [i].

It is a great help towards clear speaking, especially in a large room, if the speaker exaggerates slightly the first position, *i.e.* makes the [u] or the [i] *very* close, and passes on to the next vowel quickly ([wɔz], not [u - - ɔz]), and if he makes the lip-movement vigorous, rounding the lips a great deal for [w] and spreading them well for [j]. The sounds should be pronounced with energy.

The glottal stop

In all parts of the country there is a tendency for speakers of many classes to use what is called the *glottal stop*. This is a stop made by bringing together the vocal chords, momentarily stopping the breath-stream at that point, and opening them suddenly (phonetic symbol [ʔ]). Most people are unaware of the existence of this sound, as it has no letter to represent it.

Though not an essential speech sound, it is often heard in educated English speech in the following cases:

(1) Before a strongly stressed vowel, as in:

[ɪts ˈʔɔːlweɪz ðə seɪm] [ðæts (h)wɔt ˈʔevrɪbɔdɪ sez] [hi wəz moust enθjuːzɪˈʔæstik].

(2) When a word ending in a vowel is followed by one which begins with a vowel:

[eɪʃə ʔənd æfrɪkə] [ði ɪndɪə ʔɔfɪs].

(In such cases some speakers insert [r], *e.g.* [eɪʃər ənd æfrɪkə]).[1]

(3) It sometimes takes the place of [r] in such cases as [westmɪnstə ʔæbɪ], instead of the more usual [westmɪnstər æbɪ].

It should be pointed out that it is not at all necessary to insert the glottal stop anywhere: it is quite possible to stress the syllable of a word beginning with a vowel without prefixing the glottal stop, and to make the transition from one vowel at the end of a word to another at the beginning of the next, without either glottal stop or intrusive [r].

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[1] The intrusive [r] is very common even among educated speakers in phrases such as [ðɪ aɪdɪə əv ɪt] which becomes [ðɪ aɪdɪər əv ɪt]. I heard recently from the pulpit [nɔər ənd ɪz fæmɪlɪ].

In dialects the glottal stop sometimes takes the place of another plosive consonant, when for example a speaker says [leˀə] instead of [letə], and the Cockney newsboy calls out [paɪˀə] for [peɪpə], and you hear [ðæˀ sɔɪˀ əv θɪŋ]. This tendency is not restricted to any part of the country, but occurs in Scotch and Yorkshire speech as well as in London, and is particularly noticeable in Norfolk, Lincolnshire and Berkshire.

It is not difficult to check the tendency to insert the glottal stop, for the speaker *can* use the correct sound: *e.g.* the speaker who says [leˀə] uses an ordinary [t] in "ten," and he has only to learn to use it in another position. This is a case of learning a new distribution of sounds, not of learning a sound which is strange to the speaker. But the habit may be so strongly fixed that its cure is not always an easy matter.

If there is any real difficulty, it is well to separate the words up into syllables [le – – – tə], [peɪ – – – pə], gradually diminishing the space between the syllables. In cleft palate speech, the speaker makes use of the glottal stop to produce the effect of a stop when he cannot make one in the normal manner. And when the operation is over, he still has not only to learn the sounds which he has been unable to make, but he has to unlearn the sounds he has used in their place.

The following exercises are suggested for getting rid of the glottal stop:

(1) The "soft" attack of vowels.

Sing [ɑ------, e------, i------, o------, u------], beginning very gently; not [ʔɑ------, ʔe------], etc.

If necessary, to avoid the "hard" beginning, use a slight [h]: [hɑ------, he------], etc. The [h] should be dropped gradually.

(2) To accustom the voice to beginning with a vowel, not a glottal stop, alternate [hɑ------ɑ------hɑ------ɑ------, he------e------he------e]. This is suggested by Dr. W. A. Aikin in *The Voice. An Introduction to Practical Phonology* (published by Longmans).

(3) It is a good plan to practise singing the sound [ŋ] before vowels, *e.g.* [ŋɑ, ŋe, ŋo, ŋɔ, ŋu], etc. When this can be done easily, the student should *imagine* the [ŋ] and sing the vowel. The thought of the [ŋ] will generally prevent the insertion of the glottal stop.

Vowels

A vowel (in normal speech) is a voiced sound in which the air has a free and unrestricted passage through the mouth. The vocal chords are in vibration and the air stream passing from the lungs is modified by the sounding chamber of the mouth.

Indistinctness of vowel sounds is generally due to the mouth not being open enough ("talking through one's teeth"), so that the resonance chamber of the mouth is not given its full chance of reinforcing the vocal note. It is possible to pronounce most of the vowel sounds with the jaws about an inch apart, and to do so is useful as an exercise; but in ordinary speech this is not usually done, nor is it necessary. It is necessary, however, that the vowel sounds should be allowed to have their full value, and for this purpose the lower jaw should move as much as is possible without undue grimacing, and particular attention should be paid to this point by speakers who wish their words to carry to the end of a large hall. Good exercises for making the most of the voice are given in Dr. Aikin's book mentioned above.

Another cause of indistinct vowel articulation is the habit of not making the front vowels far enough forward in the mouth. Front vowels are those which are formed by some degree of raising of the front of the tongue towards the hard palate, such as [iː, ɪ, e, æ], the sounds in "see," "sit," "bed," "man," the diphthongs [eɪ] and [aɪ], as in "play" and "my." These sounds should be made as far forward in the mouth as possible, and should not be replaced by some kind of vowel for which the tongue is retracted towards a middle position, with a much more obscure quality. In order to help this, the lips which are as a rule slightly spread for these vowels should be spread somewhat vigorously. For the back vowels [uː, ʊ, ɔː] as in "rude," "put," "all," the lips should be well rounded: this is an essential element of the sounds and absolutely necessary for clear speaking. If attention be paid to these points, speech is likely to be much more clear and pleasing.

A third consideration should be noted. In English it is customary for certain vowel sounds in unstressed positions to be reduced to what is known as the neutral vowel sound (a kind of [ə]) or to a loosely articulated [ɪ]. For example, the word "consider" bears the stress on the second syllable, and the first syllable, which is unstressed, becomes [kən]; but in the word "consequence" the first syllable is stressed and is pronounced [kɔn]. Similarly in the two pronunciations of the word "object," [′ɔbdʒɪkt] (noun) and [əb′dʒekt] (verb), the pronunciation of the two vowels varies according to the stress used: in the former the *o* has the full [ɔ] quality and the *e* becomes a less clear vowel (in the pronunciation of some people a kind of [ɪ] and in that of others a vowel between [ɪ] and [e]); in the latter the vowel of the first syllable is the neutral [ə], and the second has its full [e] value.

Many teachers, particularly in the class-room, use the strong form of the vowels in unstressed positions, under the delusion that they should pronounce each syllable as it is written: thus you hear [kæpteɪn] and [æbsent] in place of the normal [kæptɪn] and [æbsnt] (or [æbsənt]). The effect of this is to draw undue attention to unimportant words or syllables. A clergyman who pronounces "who art the author of peace and lover of concord" as [huː ɑːt ðiː ɔːθər ɔv piːs ænd lʌvər ɔv kɔŋkɔːd], with the unimportant words "the," "of," "and," in their strong form, gives the impression that he is stressing these words unnecessarily, and in so doing diverts attention from the important words to them.

One clergyman who had the habit of doing this, also, in order to avoid the neutral [ə], used to say [ˈsɪmpəːθɪ] ([əː] the vowel sound in "heard") instead of the normal [ˈsɪmpəθɪ], and it sounded as if he were stressing the second syllable.

While such a pronunciation sounds affected and pedantic, it is advisable for public speakers to adopt a half-way pronunciation, in which the vowel does not become altogether obscured, *i.e.* instead of pronouncing [əknɔlɪdʒ] or [æknɔlɪdʒ] he should use a kind of [æ] which is retracted from the fully front position, and which is between [æ] and [ə] (phonetic symbol [æ̈]). Other examples are: [kɔ̈nsɪdə], [æbsënt], [hæ̈v]—*e.g.* [aɪ hæ̈v kʌm tu ði end], which in ordinary conversation would be [aɪ v kʌm . . .], and in ordinary reading aloud [aɪ həv kʌm . . .].

CHAPTER III

PARTICULAR SPEECH DEFECTS AND SUGGESTIONS FOR THEIR CURE

MOST speech defects consist of the substitution of one speech sound for another; for instance, the pupil cannot pronounce correctly an *s* or an *r* sound, and instead of these he uses another speech sound, such as [θ] (the sound of *th* in "thin") for [s], a kind of [w] for [r], etc. The sounds most commonly mispronounced are [s], [ʃ] and [r].

Defective s *and* z *sounds*

For [s] and [z] the blade of the tongue is raised so that it nearly touches the teeth-ridge, and the air escapes over the top of the tongue in a narrow channel. (See diagram 12.) In all attempts at correction of a wrong sound, this is the position to be aimed at. When [s] has been learnt correctly, the pupil should be told to *sing* his new sound: this will give the voiced equivalent [z]. It is advisable then to practise these sounds in words. (See p. 39.)

In this, as in all other cases, the pupil will do well not to attempt to introduce his newly acquired sound into words and sentences, until he is able to make it *with ease* in isolation. Thus it is useless to try to say "The sun sinks slowly over the silent city" until he can easily say [s] by itself.

The commonest mispronunciations are:

(1) The use of [θ] instead of [s], and of [ð] instead of [z].

This is the sound of ordinary lisping; the tip of the tongue is either between the teeth or against the edge of the front upper teeth. By some means it must be pushed back so that it does not touch the teeth at all. The correct position can often be obtained by inserting a tongue-guide (a small paper-knife or a glass rod [1]) or the finger between the teeth. The pupil then tries to say his usual sound [θ], and he finds that he says [s], *i.e.* the tongue, forcibly kept from the position between the teeth or just behind them, takes up its correct position for [s]. With a little practice the pupil will be able to manage this without the help of the tongue-guide, and he should soon realise the position. (See diagram 14.)

(2) The use of [l̥] ([l] pronounced without voice [2]) instead of [s], and of fricative [l] for [z].

In this voiceless [l̥], as in the sound of [l], the air escapes along the sides of the tongue, but there is no voice accompanying the sound, and often considerable force of breath is used, which gives the effect of a strong fricative.

The cure of [l̥] can be effected in the same way as that suggested for curing the [θ] lisp, *i.e.* the pupil places his finger between the teeth and tries to say [θ]. He is unable to do this because of the obstruction between his teeth, and will probably say something like [s] instead. If he thinks of [s], his wrong sound is likely to come, as he can pronounce [l̥] as easily with his finger between his teeth as without. He must therefore aim at saying [θ]. This method has been tried with success many times; one of my pupils made a correct [s] in two minutes, and in five minutes was making it without the aid of the finger in the mouth. (See diagram 15.)

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[1] The advantage of using a glass rod is that it can easily be sterilised.

[2] This is the sound of the Welsh *ll*.

Another method is to start from [t], in a word like "ten." Pronounce it with strong aspiration [tʰen], *i.e.* with a strong puff of breath after the explosion, before the vowel begins. Instead of making a sudden explosion, take away the tip of the tongue from the teeth-ridge slowly. This will give the group [ts]; hold on this sound and you have [s]. Again the pupil must not think he is saying [ts] as in "eats," or he will use [tl̥], his normal pronunciation, but he must concentrate on [t] with strong aspiration. I heard of one speaker who used [l̥] in English for [s], but who could pronounce [ts] in German words ("Zimmer," for instance) perfectly. A very little practice would have put this speaker's English [s] quite right. It is often useful in trying to obtain a correct [s] to make use of a thin rod, such as a knitting needle, putting it along the middle of the tongue, in order to produce the narrow channel which is essential for the right production of the sound.

The teacher should try each of these methods and work from the more successful. In my own experience I have found the second method successful when the result of the first was too much like [θ].

(3) The use of [n̥] ([n] pronounced without any voice) instead of [s].

In this case the pupil is pressing the tip of the tongue against the teeth-ridge (as for [t]), while the soft palate is lowered, so that the air passes out through the nose, giving the effect of a snort. (See diagram 6.)

If, as is probable, the pupil's other fricative consonants are properly pronounced, it ought to be quite easy to obtain the correct sound from one of them. It may be produced from [θ] or from [t] as described above. If the pupil has a fricative [r], he may start from that, saying it *without voice* and with considerable breath force. This produces a kind of [s] sound, and it should not be difficult then for the pupil to move the tip of his tongue into various positions until he gets a good variety of [s].

(4) The use of [ŋ̊] (the sound of [ŋ] pronounced without voice) for [s].

The pupil in pronouncing this sound is again leaving the passage to the nose open, *i.e.* the soft palate is lowered, while the tongue is raised at the back to touch it. (See diagram 7.) Two corrections have to be made here, viz. the palate must be raised to close the passage to the nose, and the back of the tongue must be lowered. Unless the pupil has some physical disability in moving the palate (see Cleft Palate Speech, p. 48), this is only a bad habit, and he doubtless does raise it in making other sounds. The teacher must therefore work from one of these sounds. He can proceed as described in sections 1, 2 and 3 above, trying each method and working from the one which answers best.

(5) The use of [ʃ] (sound of *sh*) for [s].

The two sounds [s] and [ʃ] are similar in their formation, the main difference being that in [s] the point of articulation is against the teeth-ridge, while for [ʃ] the narrowing is a little farther back. Another point of difference is that the tongue is spread more for [ʃ] than for [s], and the channel through which the air passes is wider. (See diagram 16.)

To cure this mispronunciation, then, it is necessary to narrow the channel as well as to bring the point of articulation forward. The use of a thin rod as described in section 2 (p. 25) may prove successful in obtaining the narrow channel. To get the tongue into the right position, begin from [r], or, failing this, from [θ] or [t], as already explained.

(6) The use of a strong pharyngal fricative for [s].

The effect is that of an exaggerated kind of [h], with some of the breath coming through the nose. This often occurs in cleft palate speech, where it is a device to obtain a similar effect to that of [s] when it is impossible to pronounce [s]. (See Cleft Palate Speech, p. 53.)

(7) The use of the glottal stop [ʔ] for [s].

This is generally a case of the confusion of [s] and [t], which are articulated in the same place, and the glottal stop is an attempt to make [t].

The sound [s] can be taught by one of the methods which have been explained. The difficulty in this case will be to get rid of the glottal stop, when the new sound is taught. When the pupil can say [s] readily, it should be practised initially and finally, *e.g.* [siː, ðɪs]; and to teach its use before consonants it is well to break up the words into single sounds or groups, *e.g.* [lɔ – – s – – t], [s – – lou]. Singing the words helps to get rid of the glottal stop in such positions.

Defective sh sounds

In making the sound of [ʃ] the narrowing of the passage between the tongue and the roof of the mouth is farther back than in the case of [s], *i.e.* it is somewhere near where the teeth-ridge merges into the hard palate: the channel is not so narrow as for [s]. (See diagram 16.)

(1) The use of [s] for [ʃ] (*e.g.* [sɔp] for [ʃɔp]).

This is a childish pronunciation which is not difficult to correct. If imitation fails, push the tongue back a little with the finger or a tongue-guide, and it will probably take up the right position. It may be advisable to tell the pupil to round his lips in trying to obtain the correct sound.

If this is unsuccessful, the sound may be taught in the following way: the pupil should pronounce a *close* [i] (the vowel sound in "see") with considerable force; then he should say it without voice and with lip-rounding, raising the tip of the tongue until it is just behind the teeth-ridge. The resulting sound resembles closely the sound [ʃ], and a little experimenting as to the place of narrowing will generally produce a perfectly correct sound. (See diagram 17.)

(2) The use of [l̥] for [ʃ].

This is a fairly common defect. It can be cured either from [s], by pushing the tongue back, or the pupil can begin from close [i]. Both methods are described above.

Defective r sounds

The tongue position for a fricative [r], the usual Southern English sound of the letter, is similar to that for [s, z], except that the tip of the tongue is curled up slightly. (Compare diagrams 18 and 12.) A knowledge of this fact alone is often sufficient to enable the pupil to make the sound correctly.

(1) The use of [v^{w}] for [r].

It is generally thought that people who cannot pronounce [r] use the sound of [w] instead of it, *i.e.* that they say "wed wug" for "red rug." This is not the case. If you ask a speaker who cannot pronounce an [r] to say the words "wag" and "rag," he will not pronounce them in the same way. The difference between the two sounds lies chiefly in the lip position. Most people round the lips somewhat for [w], although the sound can be pronounced (in a rather indistinct fashion) with no lip-rounding. The initial sound of "rag" with such a speaker is something between [v] and [w]. The lips are spread, the top teeth just touch the inside of the bottom lip, *i.e.* a weak kind of [v] with hardly any friction is being made. It is the tongue position that gives the impression of [w]; for this sound, as for [w], the tongue is raised towards the soft palate. (See diagrams 20 and 21.) Compare this diagram (phonetic symbol [v^w]) with that of fricative [r] (No. 18). In the former the tip of the tongue is not in use at all. To make the correct sound, therefore, the back of the tongue must be lowered and the front raised. The teacher must work from a sound in which the tongue position resembles that of [r]. If the diagrams of the fricative consonants (Nos. 10 to 13) are examined, it will be seen that the nearest one to [r] is [z]. The pupil should try to curl up the tip of his tongue and pronounce [z]. Another good exercise for obtaining the sound is to place the bent knuckle of the forefinger between the teeth and try to say [ʒ] (the sound of *s* in "pleasure"), taking care that the finger is underneath the tongue. The result is a fricative consonant resembling [r]. If this is not very successful, try the same position of the knuckle, and make the pupil say [ð] or [z]; sometimes these give better results than [ʒ]. The teacher should try each in turn and see which proves best for each individual pupil and should work from that. This method has proved very successful in teaching foreign students who do not possess a fricative tongue [r] in their own language.

When the pupil has produced a satisfactory [r] sound with the knuckle between his teeth, he should attempt to put the tongue into the position without the knuckle to push it there. At first, no doubt, the sound will have too much "buzz," *i.e.* it will resemble [z] too closely, but if he tries to reduce the friction by making the sound more gently and with less breath force, he will gradually acquire the correct sound. He should get to this stage before trying to use the sound in words. When he can make it with fair ease, it should be given in initial positions in words like "red," "run," "round," etc.; then between vowels, "very," "Mary," "hurry," and finally in combination with other consonants [pr, tr, kr], etc. In this, as in all other corrections, the sound is apt to be too noticeable when the pupil first uses it in connected speech; but in time it will be made without conscious effort and become less obvious.

(2) A velar or uvular variety of [r].

A uvular rolled *r*, such as is heard in most parts of France, is produced by a series of taps made by the uvula (the end of the soft palate) against the back of the tongue. (See diagram 19.) It is the sound made in gargling. This is sometimes heard as an individual speech defect for an ordinary English [r].

Another variety of sound which, in the case of some individuals, and in the Northumbrian dialect, is used to replace [r] is a fricative consonant made by raising the back of the tongue very close to the soft palate or the soft palate and uvula.

In both these cases the front of the tongue should be raised and the back lowered. The methods advocated under (1) should be tried.

(3) The use of [j] (the first sound of "yes") or [l] for [r].

These are ordinary childish habits, [j] and [l] being easier to say than [r]. In the case of children it can usually be cured by imitation; if this fails, the methods described under (1) should produce the desired sound.

Note

For those who wish to acquire a rolled [r], the following exercise is suggested. Pronounce [t] with the tip of the tongue against the *teeth* as for a French *t*, not against the teeth-ridge; then pronounce [d] in the English fashion against the teeth-ridge, saying [tədɑɪ – – – tədɑɪ – – –]. If these syllables are pronounced very quickly, the [d] becomes a kind of one-tap [r], which, with practice, it should be possible to develop into a rolled [r].

Defects in stops

Children often replace the sounds [t] and [d] by [k] and [g], saying [lɪkl] instead of [lɪtl]. This habit is generally quite easily cured by imitation, but cases occur in which the habit persists into later life and the help of a little phonetic training is needed. I treated one girl of sixteen who never used the tip of her tongue for [t, d, n], replacing these sounds by [k, g, ŋ]. A very short lesson (see diagrams 3 and 4) sufficed to show her the tongue position for [t]—*i.e.* the tip touching the teeth-ridge—and she was able to make the sounds correctly in a few minutes. Their use in combination with other consonants was more difficult; it was not easy for her to say such words as "still," and carefully graded exercises were necessary before she was able to use the newly acquired sounds in connected speech.

The contrary mistake, that of substituting [t], [d] and [n] for [k], [g] and [ŋ], is as easy to correct. Children who continue to say "tat" for "cat," and "tate" for "cake," and "dod" for "dog," should have the tip of their tongue held down with a tongue-guide; this will generally force the back of the tongue into the right position, touching the soft palate.

Defective [θ] *and* [ð] *sounds* (*the sounds of* th *as in "thin" and in "then"*)

The sounds [θ, ð] are often among the last ones a child acquires: he substitutes [f, v] for them, saying [mʌvə] for [mʌðə] and [fɪŋk] for [θɪŋk]. They are not difficult sounds to teach, though it takes a little practice before they are used readily in connected speech, and it is rare that this childish habit persists. I have come across cases, however, where grown-up people still use [f, v] for [θ, ð]; and this frequently in words in common use only, words which they have learnt as children, such as "mother," "then," "that," "the," whereas in more "learned" words, such as "sympathy," "authority," which have been acquired later, they use the correct sounds [θ, ð].

The pupil can quite easily understand what is wanted of him: all he needs to do is to put his tongue loosely between his teeth and blow. This will produce [θ]: then it is only necessary for him to utter the sound with voice in order to obtain [ð].

Defects in nasal consonants

The nasal consonants [m, n, ŋ] (see diagrams 5, 6, 7) are not difficult to pronounce, and defects in these sounds are rare. The following substitutions, however, are found.

(1) The use of [ŋ] for [n].

This defect is generally found in conjunction with the use of [k, g] for [t, d]: *e.g.* a pupil who says [gʌz] for [dʌz] says [ŋaɪs] for [naɪs]. Like [t] and [d], [n] is not difficult to teach, as the tongue position can be seen and easily imitated.

(2) The use of [l] for [n].

This mispronunciation (giving "pelsil" for "pencil") is a characteristic of "adenoid speech." (See p. 47.) For the two sounds [l] and [n], the tip of the tongue is in the same place, touching the teeth-ridge. (Compare diagram 6 and diagram 8.) For [n] the soft palate should be lowered to allow the air to pass out through the nose. A speaker who uses [l] in this position—probably unable, for some reason or other, to breathe through the nose—allows the breath to pass along the sides of the tongue.

One who is unable to pronounce [n] (and the other nasal consonants) should be examined to see if here is any physical defect.

Defects in the l sound

The sound [l] is not very often mispronounced, but a case recently came to my notice where there was difficulty in making it. It was replaced before vowels by [r], *e.g.* "lace" became [reɪs]; in other positions it was a nasal consonant, [n], [m], or [ŋ], according to the neighbouring consonants; finally after a vowel it was always [n]: thus "till" [tɪl] became [tɪn], "chapel" [tʃæpl] became [tʃæpm], "buckle" [bʌkl] became [bʌkŋ]. One curious characteristic of this case was that in some words where [t] or [d] preceded [l], these were changed into [k] or [g] and the consonant replacing the [l] was the corresponding nasal, *e.g.* "little" [lɪtl] became [rɪkŋ].

It is not difficult to teach the sound [l]. Let the pupil sing [ɑː – – –], and while continuing the vowel, lift the tip of the tongue to touch the teeth-ridge. He can see this position easily in the teacher, and can watch his own tongue in the mirror. He must not think he is trying to say [l], and it is essential that he should hold on the sound of [ɑː] without any break. He should practise this exercise [ɑː – – – lᵅ – – –]—*i.e.* [ɑː] followed by [l] with the resonance of [ɑ]—for a long time. Then he will realise the tongue position of [l] and the sensation of the breath coming along the sides of the tongue. Where [l] is replaced by a nasal consonant, care must be taken not to let the breath escape through the nose. If the pupil thinks he is saying [ɑɪ] all the time, there should be little difficulty in avoiding the nasal sound.

Cases treated

I append a short account of some of the cases I have treated together with the methods I have used. I have chosen such defects as teachers are likely to meet.

A., a man of twenty-three, wished to learn Spanish, and needed the sounds [θ, ð], which he had always pronounced [f, v], saying "I fink vat is difficult."

There was no difficulty in obtaining the correct [θ, ð] sounds, as the position of the tongue is one that is easy to see; the difficulty was to acquire the habit of using the sounds in connected speech. I found it best not to try to make him use it in words at first, so as to break the association he had with those words in which he had used [f] and [v] wrongly. I worked in this way. The first day he pronounced the sounds [θ, ð] in isolation and before vowels:

θiː, θeɪ, θe, θæ, θɑː, θɔː, θoʊ, θuː
ðiː, ðeɪ, ðe, ðæ, ðɑː, ðɔː, ðoʊ, ðuː, etc.

These he was told to practise until he could say them without thinking about them. The second day he had to practise the new sounds in final positions and between vowels:

iːθ, eɪθ, eθ, æθ, ɑːθ, ɔːθ, oʊθ, uːθ
iːð, eɪð, eð, æð, ɑːð, ɔːð, oʊð, uːð

and:

iːθɪ, eɪθɪ, æθɪ, ɑːθɪ
iːðɪ, eɪðɪ, æðɪ, ɑːðɪ, etc.

When the pupil was able to pronounce these without much difficulty, and with fair speed, I introduced him to English words (and, as he required the sounds in Spanish, to Spanish words) containing the sounds. The next time he was made to read ordinary English prose, fairly slowly, noting, of course, the words in which [θ] and [ð] were needed. I found invariably that the more unusual words, in which the sounds occurred, were pronounced correctly, but common words like "this," "the," "that," "then," "mother," "father," etc., were difficult to correct. In the same way, at a little later stage, he would *read* these words quite correctly and still use his old sounds in talking. In the six lessons he had with me he did not manage to break himself of the old habit in talking, though he did in reading; but he was on the way to it, and the rest, of course, depended on his own perseverance.

B. was a girl of thirteen who used breathed [l̥] of a somewhat noticeable variety for [s], saying [l̥ɪkl̥pənl̥] for "sixpence." I tried both methods described on pp. 25, 26. The first one, that of putting some obstruction between the teeth and saying [θ] (the sound in "thin"), was not particularly successful, the result being too much like [θ]. The second method was very successful. She managed to say [tʰen], [th], and finally [ts] in about five minutes. The first day I told her to practise that alone, holding on the end of it for a good long time. Next day she said [ts] with comparative ease: then I got her to think the [t] and say the [s] only. After a few attempts, when she used her old sound [l̥], and had to go back to [ts], she managed to obtain it. I tried no more that day. The next day she could say [s] without the preceding [t], and it came fairly easily, so I gave her the sound initially in words like "so," "see," "saw," "some," "same," and finally in "this," "yes." In the case of the [s] final, it was necessary sometimes to divide up the word into two parts [ðɪ – – s], and then gradually to bring the two parts together. On the fourth day she could say these words pretty well. I then tried her with [s] followed by a consonant, "slow," "stay," "snow," "smooth," "speak," "street," "school," "east," "wasp"; and between two vowels (where the sound is [z]), "easy," "busy," etc. The fifth day she could say the sound in any position, though combinations of consonants in words like "sixpence" [sɪkspəns] were still difficult. The defect was practically cured now; on the sixth day the girl could read a paragraph, making only two mistakes in [s] sounds, and correcting those easily. The effort was still noticeable, but with practice that would wear off; the ultimate success would depend on her own perseverance, and on the correction she had at home and in school to remind her to use her newly acquired sound.

C. was a woman who used voiceless [l̥] for [ʃ]. In this case the defect was very slight, and to the ordinary listener only added to the general effect of indistinctness. I tried to teach her the sound [ʃ] from [s] without much success. The second method, working from [i] (see p. 30), succeeded much better; she was able to make [ʃ] in isolation fairly quickly, but needed a good deal of practice to use it in words.

D. was a girl who could not pronounce [r]. She used [vʷ] (see p. 31) in place of it. I tried her with the knuckle between the teeth, saying [ʒ], and this produced a sound very near to [r], but not quite the correct sound. Next I tried to make her curl up the tip of her tongue and pronounce [z]. At first there was too much "buzz"—it was too much like [z]. But she was able gradually to reduce the breath force and the amount of friction until a good [r] was obtained. When this was sufficiently good, she was made to practise it in initial positions, in syllables like [ri, re, ræ, rɑ], etc. This took a considerable time, as it seemed to be difficult for her to stop the lip-movement which was part of her faulty sound. It was necessary to hold the bottom lip away from the teeth until she had realised the tongue position for [r] and got used to it. The next stage was to use the sound between vowels as in the words "very," "carry," "hurry," etc. Here again considerable practice was necessary. The third stage was to use [r] with other consonants in words like "brown," "crow," "draw," "free," "grow," "price," "street."

E. was a girl of twelve whose speech was almost unintelligible. She had apparently no malformation, although she had been tongue-tied as a baby. The frenum (the "string" that fastens the front of the tongue to the bottom of the jaw) had been cut at the age of two and was certainly quite long enough, when the child came to me, to allow of the formation of any English speech sound. On testing her I found that all the fricative consonants were weak. She could say [f, v] and practically no others: [s, z, r, θ, ð] were missing; she could not say [j] in "you," (she said [vuː]), although she used it instead of [ð] in words like "then," which she pronounced [jen]. For [s] and [z] she used the glottal stop in all positions except initially, where she used voiceless [l̥]; for [r] she used [vʷ] (the child said [mɪʔ] for "miss," [wɪʔkəʔ] for "whiskers").

The first sounds I dealt with were [θ, ð]: their position is not a difficult one to see and demonstrate. She managed to say these sounds, when shown the position, quite easily: in using them, she had constantly to be reminded about them, and had to exaggerate the movement of the tongue, putting the tip well between the teeth, where, by using a looking-glass, she could see it.

The next sound was [s]. I used the method which was successful in the case of B. (p. 39), *i.e.* beginning from [tʰ]. In a comparatively short time she could use [s] initially without much effort. But it was more difficult to replace the glottal stop. She had to have constant practice in syllables such as [iː – – – s – – – t], [iːs – – – t], [iːst]; [lɔ – – – s – – t], [lɔs – – – t], [lɔst]. Even at this stage, the child had a tendency to insert the glottal stop *as well as* [s], *e.g.* [lɔʔst]. This was gradually stopped by the child singing the word.

After [s] and [z], I treated the [j] sound, which she could say but did not use in the right place; this, of course, was not so difficult as teaching a new sound.

I left [r] till the last, until she had managed to get [s] and [z] without difficulty. Then I worked from [z], making her curl up her tongue as in the case of D. (p. 40).

A further peculiarity of this case was the difficulty the child had in saying two consonants after each other. I discovered that she could say "pay" and "lay" but not "play," "kick" and "wick" but not "quick" [kwɪk]. This was true even of those consonants which she could pronounce. A good deal of practice was necessary to overcome this difficulty: in cases like "play," I made her hold on [l] for some time, and while she was saying it, bring her lips together for the [p] without taking the tip of her tongue from the teeth-ridge. In "quick" I made her say the stop of the [k] and, while holding this, round the lips for the [w]: in this way she managed to get the two sounds almost simultaneously.

Note.—Another method of obtaining [r] is to say the vowel [əː] (as in "bird"), and while holding this on to curl the tip of the tongue up until weak friction is heard and felt. Then continue with [əːrəːrəː], making the [r] long until the tongue position is realised.

CHAPTER IV

NASAL TWANG AND ADENOID SPEECH

Nasal twang

When a speaker gives a general effect of nasality it means that the soft palate, which should move upwards to close the passage to the nose for every sound except the nasal consonants, is not doing its work properly, *i.e.* some air is escaping through the nose. The degree of nasality varies with different speakers; most people nasalise, to a certain extent, the vowels in the neighbourhood of nasal consonants, but if more than the normal amount of nasality occurs, the effect is noticeable and felt to be unpleasant. It is the vowels chiefly that are concerned, though some of the consonants may also be affected.

To cure this is not an easy matter. The first thing to be aimed at is the control of the soft palate. Any pupil who is not a child should be taught to control his palate consciously, so that he can shut up the passage to the nose at will. A large number of exercises to ensure this will be found in the chapter on Cleft Palate Speech (p. 48), but not all these should be necessary for a grown-up student. A plan of work is suggested here.

(1) The teacher should test all the sounds, vowels and consonants, find out which of them are free from nasality, and work from these.

(2) If all the vowel sounds are nasalised, it is useless to begin from one of them. Sometimes, however, it is found that [iː] is free from nasalisation. In such a case the pupil should pronounce [iː] (as in "eat"), noticing its quality, and should gradually work towards the more open front vowels [ɪ, e, æ] (as in "bit," "bet," "bat"), etc. As soon as a vowel shows signs of being still nasalised, it will be necessary to go back to a vowel which is free from nasal breath.

(3) If all the vowels are nasalised it is best to begin with [z]. This consonant is rarely nasalised: in fact if it is pronounced with the soft palate lowered it is hardly recognisable as [z] at all, as it loses its characteristic buzz. Pass from [z] to [iː], pronouncing [ziː, ziː, ziː] until the [iː] is free from nasality. When this has been achieved, go on to [ɪ, zɪ, zɪ, zɪ], to [e, ze, ze, ze] and to [æ, zæ, zæ, zæ], and then work in the same way from [zuː] through [zo] and [zɔ] to [zɑː]. It will often be necessary to go back to the nearest sound which the pupil does not nasalise. The vowel [ɑː] seems to lend itself most easily to nasalisation; it is therefore advisable to leave this sound till the last.

(4) Along with the above, other exercises designed to give conscious control to the soft palate should be practised, for the pupil who realises the

sensation of pressure exerted by the soft palate when closing the entrance to the nose will find little difficulty in getting rid of his nasal twang. In order to do this he should examine the inside of his mouth carefully with the help of a mirror, and watch the movement of the palate. While looking inside the mouth, sing [ɑː – – –] on a low note and then on a high note: the soft palate should move upwards for both, but more for the high note.

(5) Most people can pronounce the last syllable in the word "mutton" [mʌtn] ([tn], with no vowel between [t] and [n]). Say this combination several times [tntntntn], keeping the tip of the tongue on the teeth-ridge. The explosion that can be felt and heard is due to the escape of the air through the nose when the soft palate leaves the wall of the pharynx. The pupil should practise this until he is conscious of the position of the soft palate *before* the explosion, *i.e.* during the "stop" of the [t], when it is raised. Similar exercises can be practised with the combinations [pmpm], keeping the lips together all the time, [dndndn] (same position of the tongue as for [tn]), [kŋkŋ] and [gŋgŋ] (with the back of the tongue raised to touch the soft palate). (See diagram 22.)

(6) A final exercise, more difficult than those already given, is to alternate an oral and a nasal vowel [ɑɑ̃ɑɑ̃, ɛɛ̃ɛɛ̃], when the pupil directs the breath stream alternately through the mouth and through the nose as well as the mouth by the movement of the soft palate. The power to do this

indicates a considerable degree of control, which can be increased by further practice of this and other similar exercises. The sounds must be sung on one note.

(7) When the vowels can be pronounced in isolation without any nasal tone, and *not before*, they should be practised in words. It will be found most difficult when they occur before or after a nasal consonant. In such cases the following plan works well: separate the vowel from the consonant by a short pause, thus: [m – eik] ("make"), [m – eid] ("made"), [blei – m] ("blame"), [lɔ – – ŋ] ("long"); and gradually diminish the pause; leaving till the last combinations in which the vowel occurs between two nasal consonants, as in the word "man."

Adenoid speech

Adenoid growths block up the nasal passage, and thus prevent the pupil breathing out through the nose, so that he fails to make those sounds in which this action should take place. It is popularly supposed that with a cold in the head a speaker "talks through his nose," whereas in reality it is the reverse of this which takes place: he *cannot* talk through his nose, for the cold in the head prevents the breath from issuing through the nose, and thus causes a condition analogous to that arising from adenoid growth. In such cases a speaker is unable to pronounce the nasal consonants [m, n, ŋ] (in which the mouth passage is stopped and the air escapes through the nose). Instead of these sounds, he uses the corresponding voiced stops [b, d, g], *i.e.* he says [gʊd bɔːdɪg] instead of [gʊd mɔːnɪŋ]. With some speakers [n] is replaced by [l]: I have noticed it particularly in the word "pencil," which is often pronounced [pelsil].

There are people, however, who speak in this way without having adenoid growths, merely through careless habits possibly set up through frequent colds. The teacher should ascertain in every case if the pupil has some physical cause for this kind of speech, and if not, he should endeavour to correct him. The exercises suggested under the heading of "Nasal Twang" ought to be sufficient.

It should hardly be necessary to add what doctors always urge, that the patient should be taught to breathe correctly after the operation for adenoids.

Additional Exercises for Control of the Soft Palate

1. Press down the back of the tongue with a spoon handle or tongue spatula: it will be found that the palate rises. Try to depress the back of the tongue without any mechanical aid.

2. Practise the "yawn" position, i.e. raising the palate and lowering the back of the tongue. Do this several times and try to realise the movement of the palate.

CHAPTER V

CLEFT PALATE SPEECH

THE palate is the roof of the mouth, separating it from the nasal cavities; that part of it which lies immediately behind the teeth-ridge is bony and is called the hard palate. (See diagram on p. 7.) The reader should feel with his tongue along the roof of his mouth: where the bony portion stops the soft palate begins. The function of the soft palate is to open or close the passage through the nose. It is movable and can take up two positions: the position (*a*) (see diagram 22) leaving free passage for the breath through the nose, as when we breathe through the nose with mouth shut, or when we make the nasal consonants [m, n, ŋ]; and the position (*b*) raised so as to touch the back wall of the pharynx, and thus to close the passage to the nose, as when we breathe out through the mouth or when we pronounce vowel sounds and all English consonants except [m, n, ŋ].

Some children are born with defective formation of the palate; sometimes it is the hard palate that is cleft, *i.e.* there is an opening into the nasal cavity in the hard palate; in others the soft palate is defective: instead of stretching across the upper part of the back of the mouth, it is divided vertically. It is generally possible for the surgeon to remedy these defects; without such treatment there are many speech sounds which it is impossible for the pupil to make.[1]

When the operation closing the abnormal opening in the palate has been satisfactorily performed, it should be possible for the patient to produce any sound correctly. But he will have to be taught the sounds; he will not "pick them up" naturally, unless he is so young that he has not learned to talk at all before the operation. This fact is often overlooked: it is thought that once the physical condition has become normal, good speech will follow naturally. But assuming that the patient *has* spoken, it is clear that for the sounds which he was physically unable to pronounce, he has substituted others which do not occur in normal English speech, and he will go on using these wrong sounds, in spite of his now perfect palate, unless he learns better. The teacher's task, therefore, is a double one: he has to get rid of the wrong speech habits which have been formed, as well as to teach new sounds.

Of the cases I have seen, one child of three, whose cleft soft palate had been operated on when it was three months old, speaks perfectly. In another case the operation was delayed until the child was three years old because of other physical difficulties: his speech was almost unintelligible at the age of five, and he had to be taught every sound. Another who had the operation for cleft soft palate performed at the age of twelve spoke badly. A child who was operated on for hare-lip and cleft *hard* palate at three or four years old spoke very indistinctly at the age of seven. A woman who had had an expensive dental plate made to rectify a defect in the hard palate could not speak any better with it than without it.

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[1] For the surgical and dental side of this work, see Sir W. Arbuthnot Lane's book *Cleft Palate and Hare Lip*, published by Adlard and Son, London, 1916.

One woman of about twenty-five years came to me with a cleft soft palate not operated on. All the soft palate she had was a little membrane at each side which drew towards the middle when she pronounced [ɑː]. It was therefore impossible for her to shut the passage to the nose. In spite of this, however, she managed to articulate every consonant except [k] and [g] in the right place; these were articulated against the hard instead of the soft palate, giving the effect of a very forward [k] and [g], but to ordinary listeners were not noticeably different from the normal. In all the sounds a certain amount of breath escaped through the nose, particularly in the voiceless fricatives [f, θ, s, ʃ]. She was able, however, to direct some of the breath through the mouth; with the plosives she managed to make a slight plosion and with the fricatives a slight friction at the point of articulation. For [s] she usually substituted a pharyngal fricative, but she could make a slight hiss at the teeth-ridge. All her vowels were nasal and a good deal of breath came through the nose; but she was intelligible, and she had certainly done her best in difficult circumstances.

Another boy who was born with defective hard and soft palate was operated on at the age of three. When I saw him at the age of eighteen there was still some physical defect, which it was hoped to rectify by a dental plate. He had had some instruction from a teacher of the deaf, and could make a very good attempt at the stops. He found it extremely difficult, however, to blow up a toy balloon, as he was unable to prevent the breath coming through the nose. In the same way, he found the voiceless fricatives [f, θ, s, ʃ] difficult. He managed to articulate [s] at the teeth-ridge and could say it with fair ease, and when he thought about it, he could say almost all the sounds so as to be understood easily, but in his ordinary conversation he had all the usual characteristics of cleft palate speech.

Before suggesting methods of dealing with cleft palate speech, let us first analyse the sounds made by such a speaker.

When the soft palate is cleft, it cannot close the passage to the nose; when the hard palate is cleft, a closing movement by the soft palate, even if possible, is unavailing, as there is always an opening into the nasal cavity. It follows, then, that in either of these conditions the breath must pass through the nose as well as the mouth. In point of fact, it is generally found that most of the breath flows through the nose, and that the patient finds it difficult to direct any quantity of breath through the mouth. In one case I treated, the child could not blow out a match, and it was quite impossible for him to blow a bubble.

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The effect on speech of this physical condition is as follows:

(*a*) It is impossible to make the stops [p, b, t, d, k, g], for which the soft palate must be raised, the air passage stopped at some point in the mouth, and the stop subsequently released, giving the sound of a slight explosion. (See diagrams 2, 3, 4.) The sounds substituted are:

For [p] and [b], the corresponding nasal consonants [m̥] (voiceless [m]) and [m].
For [t] and [d], the corresponding nasal consonants [n̥] (voiceless [n]) and [n].
For [k] and [g], the corresponding nasal consonants [ŋ̊] (voiceless [ŋ]) and [ŋ].

But it is often found that in order to give a plosive effect, the patient uses a glottal stop, the only plosion he is capable of making, particularly in the case of the voiceless sounds [p, t, k]. (See p. 18 where the glottal stop is explained.)

(*b*) The sound of [l] becomes [n] or some kind of nasalised [l].

(*c*) The fricative consonants are all wrong.

For [f, v, θ, ð], the patient may place his teeth, tongue and lips in the correct position, but most of the air passes out through the nose, and none, or very little, through the mouth; and as a result [f] and [θ] become merely nasal breath, and [v] and [ð] their voiced equivalents, a kind of [n] sound.

[s, z, ʃ, ʒ] all become a kind of snort (voiceless [n̥]), or else the patient attempts to produce a fricative effect in the pharynx. In two cases I dealt with, the children used a strong nasal pharyngal fricative for [s, z, ʃ, ʒ], and [r] was [vʷ] with nasal resonance. (See p. 31 where [vʷ] is described.)

(*d*) All vowel sounds are nasalised; that is, in pronouncing them, breath passes through the mouth and the nose at the same time.

The cure

As it is primarily lack of movement of the soft palate which prevents correct speech, the control of that organ must be the first aim. The muscles are weak and need to be strengthened in order that the patient can raise and lower the palate at will. Dr. E. W. Scripture, in his book *Stammering and Lisping*, recommends the use of a "velar hook," a rod with a curved rubber end, which is put behind the soft palate and a gentle pull is exerted, whereupon the soft palate moves backwards to resist the pull. I have not tried this, as in one case I treated the operation had been a very difficult one and the palate was so frail that I did not dare to touch it, and in the others the movement soon became sufficiently strong without such treatment. The following exercises were devised by me to lead gradually to the control of the palate.

Methods by which control may be obtained

The teacher will need to use all his ingenuity and all his phonetic knowledge to invent a sufficient variety of exercises, so that the pupil, especially the young one, does not grow tired of the necessary effort.

(1) The first object is to try and guide the air stream to pass out of the mouth instead of through the nose. The teacher should place a piece of cardboard horizontally below the pupil's lower lip, then put a feather on it and tell him to blow it away. It is important to ascertain whether the breath is coming through the nose or the mouth: to test this, place one piece of cardboard below the nostrils and one below the lower lip, put a feather on each and tell the child to blow the bottom one and not the top; if the bottom feather moves it must be due to the breath from the mouth. It will take the child some little time to do this, but there is nothing to prevent his doing it, and such practice will teach him to direct the breath stream out of his mouth. Other exercises in blowing through the mouth should be tried, *e.g.* blowing thin paper flags, bubbles, playing a mouth organ, shooting peas through a pea-shooter, whistling, etc. The teacher will be able to invent many new means of interesting the young child in this kind of exercise.

(2) The pupil should be told to draw in his breath quickly through the mouth, with closely rounded lips. If the teacher is conscious of the movements

of his own soft palate, as he should be, he will feel that the palate rises as he draws in his breath through the mouth. Although the feebly moving palate of the pupil does not necessarily do this, the exercise of taking short sharp breaths in this way should induce the movement, and its repetition strengthen it.

The yawn position, in which the velum is drawn up and back by the muscles behind it, will strengthen the movement of the palate, and whistling is an excellent exercise.

(3) The pupil should practise holding his breath. At first he will not be able to do it, but after a little practice he should be able to hold it while the teacher counts two or three; he should go on until he can hold it while the teacher counts twelve or more.

(4) The pupil should be asked to look at the teacher's soft palate, watch its movements and try to imitate them, looking in a glass at his own palate. This may or may not be successful, success depending on the intelligence of the pupil; one small boy of five was able to realise what was wanted and try to move his palate in this way.

(5) At this stage the correct positions of the organs of speech for the plosives can be taught. [p] and [b] are the easiest, as the lip positions can be readily seen and felt. The pupil should close his lips and hold the stop of [p] for a second or two, and then open them suddenly and try to make an explosion there. He can be told to try to puff his

feather away in this manner. In all these exercises the teacher must, of course, ensure that the breath comes as much as possible through the mouth; he may test occasionally with a mirror under the nostrils to see if any breath is coming through the nose. The child soon realises that he must not blur the glass. If the mirror is quite clear, it means that the soft palate has moved sufficiently to close completely the passage to the nose.

When this occurs a good step forward has been taken, but the teacher must not be surprised and disappointed if the pupil succeeds only occasionally; to do it always requires more sustained muscular effort than he is capable of exerting. But when he has done it once, the teacher knows that the movement *can* be made, and complete control is only a matter of patience and varied practice.

(6) After [p] and [b] the pupil should try [t] and [d] in the same way; he should observe the teacher's tongue position, and watch his own tongue in the mirror. Almost invariably the cleft palate speaker uses the glottal stop for [t] and [d], and when he has learnt to make these new sounds, he will need to be constantly reminded to use them. This, like all other habits, has to be taught and insisted on until it becomes natural. One of the greatest difficulties in teaching the plosive sounds is to get rid of the glottal stop. In one case I treated, a boy of twelve learnt quite easily to place his tongue and lips in the position for [p, b, t, d, k, g]; he managed to make a considerable amount of

plosion, and the soft palate was raised to the correct position. But he took a very long time to get rid of the glottal stop: he would pronounce the syllable [pɑ] as [pʔhɑ], *i.e.* the [p] followed very closely by the glottal stop, and then a strong [h] sound before the vowel.

The best way to get rid of the glottal stop is to sing. Sing [ɑː], and while dwelling on the vowel bring the lips near to each other and let them touch lightly, making a very weak kind of [b]. Gradually make the contact firmer until the proper [b] is heard. The child must be made to think he is singing [ɑː] all the time.

(7) For [k] and [g] the pupil should be made to see and imitate the tongue position: if necessary the teacher should hold down the blade and the front of the tongue with a tongue-guide, and the back will generally rise. In two cases I treated, [k] was very difficult to obtain: both children used [ʔh] in place of it, and it was only by constant use of the looking-glass that they were finally taught the right position and acquired the power of saying the sounds.

(8) When [p, b, t, d, k, g] can be pronounced without much difficulty, considerable practice should be given in syllables containing these sounds: [pɑ, bɑ, tɑ, dɑ, kɑ, gɑ, ɑp, ɑb, ɑt, ɑd, ɑk, ɑg, ɑpɑ, ɑbɑ, ɑtɑ, ɑdɑ, ɑkɑ, ɑgɑ, pɑp, bɑb, tɑt, dɑd, kɑk, gɑg, etc.], and they can be used in easy words such as "pat," "hat," "take," "date," "cake," "gate," etc.

(9) Combinations of stops and other consonants will be found to present difficulty even when the child can do exercises such as those given above. It will be necessary to teach such combinations as [pl] in "please" and "apple," [bl] in "blow" and "able," [tl] in "little," [dl] in "middle," [kl] in "clean" and "pickle," [gl] in "glad" and "giggle." Combinations of stops and fricative consonants, such as [st] in "stone" or [tr] in "tree," [dr] as in "drown," [ts] as in "eats," [ps] as in "sleeps," [bz] as in "rubs," [ks] as in "thinks," [gz] as in "dogs," should be left until the fricative consonants can be pronounced easily in isolation. But plosive consonants followed by [l] can be practised at this stage. The sound of [l] will not be entirely free from nasal resonance until the soft palate can be raised easily and kept in that position for some time. It will be found that [l] can be taught quite readily when the child has the power to sing vowels without nasality.

The sounds [pl] and [bl] can be taught in the following way: Pronounce [l] and hold it on. Bring the lips together and separate them again while the [l] is continuing, taking care not to move the tongue from the teeth-ridge [l – – pl – – pl – – pl – –]. In [tl] and [dl] the tip of the tongue remains in the same position for the two sounds, and the sides of the tongue come away from the upper back teeth for the [l]. This can be demonstrated to the pupil, and if he is told to press the tip *hard* against the teeth-ridge and not to move it, he will in time manage this combination. For [kl] and [gl], begin as for [pl] and [bl] with [l], and while pronouncing [l], raise the back of the tongue into the [k] position [l – –kl – –kl – –].

(10) It may be found that the pupil can make a certain amount of oral plosion with the plosive consonants, but that some air still comes through the nose. In order to lessen this, he should try the combination of nasal consonants with the related stops.

The position of the tongue for [ŋ] and for [k] and [g] is the same, the only difference in their articulation being the position of the soft palate, which is lowered for [ŋ] and raised for [k] and [g]. If the pupil can say words in which these two sounds follow each other, such as "anger" [æŋgə], "ink" [ɪŋk], making strong plosion with the second of the two consonants, he is moving the palate up into the correct position, and the repetition of such sounds will strengthen the movement. Words like "finger" [fɪŋgə], "longer" [lɔŋgə], "hunger" [hʌŋgə], "anchor" [æŋkə], "inky" [ɪŋkɪ] can be practised.

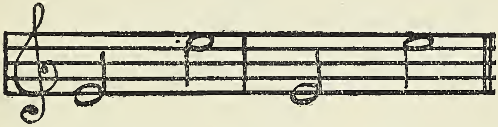
(11) Next try [t – n] without any vowel between, as in the ordinary pronunciation of the word "mutton" [mʌtn]. For these two sounds, the tip of the tongue is in the same position, the soft palate being lowered for the [n]. The position of the tongue can easily be seen by the pupil, and he should be encouraged to press the tip against the teeth-ridge during the pronunciation of the two consonants. The plosion that can be heard

is due to the soft palate leaving the wall of the pharynx. When the pupil has the power to do this, he has gained a considerable control over the palate. Similar exercises can be given with other plosive and nasal consonants: [dndndn] as in "sudden" [sʌdn], [pmpm, bmbm, kŋkŋ, gŋgŋ].

(12) The fricative consonants [s, z, ʃ, ʒ, r] are the most difficult of all the sounds to teach. When the pupil has obtained a fair measure of control of the soft palate, they can be attempted, but it is useless to begin too early, for these are the last sounds to be acquired. The other fricative consonants [f, v, θ, ð] are not so difficult, for the positions of the organs of speech in making these sounds are easy to demonstrate. The main difficulty will be in seeing that the air stream comes through the mouth and not through the nose, *i.e.* it is a question of the control of the soft palate. Practice of these sounds can be begun as soon as the child can blow out of his mouth, and the sounds will become perfect when there is sufficient control of the soft palate to keep it raised. For the sounds [f] and [v] the top teeth are placed lightly on the bottom lip, and the air escapes between them. For [θ] and [ð] the tongue is placed between the teeth.

To teach [s, z, ʃ, ʒ, r] all the methods described in Chapter III. may be tried, and the most successful used. In one case I managed to get a small boy easily to curl up the tip of his tongue, and keeping it in that position, to make a kind of fricative [r] from which it was possible to work. The sound [ʃ] came with comparative ease from a whispered [iː] with lip-rounding added. This child acquired the combinations of [tʃ] and [dʒ] very quickly.

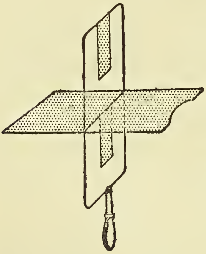
(13) When the patient has obtained a certain amount of control of the soft palate, and can raise it to touch the wall of the pharynx, he should be able to make all the vowel sounds without nasal resonance. Singing exercises are of value in strengthening the movement of the palate. Let the pupil sing the scale to the various vowel sounds: let him sing *a* on a low note and then go straight to a note an octave higher.



All the exercises suggested in this chapter have been tried with cases of cleft palate speech; they are by no means exhaustive, and the teacher will probably be able to add others to supplement them. It is impossible to say how long it takes to cure a case of cleft palate speech. That depends on several conditions: first of all on the age and intelligence of the patient; if he realises what you want, he is likely to get on quickly. It depends, secondly, on the amount of practice he gets of right sounds once they have been taught. Grown-up pupils can make themselves work, but with small children it is the mother, nurse and teacher who must encourage the child's individual effort. One intelligent boy of five years of age managed to get all the sounds correctly in six months, with eighteen lessons, but it was difficult to make him remember to use them. After the Christmas holidays without lessons the child had gone back badly, but he soon regained what he had lost. In this case an extremely capable governess carried on the lessons between my visits.

There is no doubt that to cure cleft palate speech is extremely difficult, but it is always possible to improve it by means of exercises along the lines suggested in this chapter. The breath can be directed through the mouth and the articulation of consonants can be made more precise.

Note to Section (1), *page* 54.—A useful device for testing whether the breath comes out of the nose or mouth, and for helping the patient to direct it through the mouth, consists of a wire frame, in the middle of which a celluloid sheet is inserted. A little flag of coloured ribbon hangs from each half of the frame, and the child holds the celluloid sheet against his top lip, separating the two breath streams with it, and is told to blow the bottom flag and not the top one, i.e. to blow through his mouth and not through his nose.



CHAPTER VI

STAMMERING

ALTHOUGH this book makes no claim to deal authoritatively with the cure of stammering, it has been thought advisable to add a chapter on simple methods of treating stammering children. In school the teacher often meets slight cases of this kind, which he can deal with successfully if he has time, patience and sympathy.

There are a few general principles which, if intelligently carried out, can do much to ease the case of the stammerer. In the first place, the teacher should realise that stammering is due primarily to a nervous condition: how that condition has been arrived at is a question for the nerve specialist; as a rule it is due to shock of some kind. Cases often occur, however, in which the child stammers because he has imitated somebody. Many parents are apt to think that the stammering child could help himself if he tried, that his "habit" is due to carelessness and that the best way to cure him is to reprove and punish him. Such treatment is always likely to make the stammerer worse, and to add further strain to his already over-strung nerves. It follows, therefore, that he should be kept free from excitement and anxiety:

particularly should it be made impossible for him to be mocked at in school or at home. Any treatment which will benefit the general condition of his nerves will also go far to improve his speech: consequently doctors always recommend an open-air, healthy life as far as is possible.

A second point to be borne in mind is that the muscles involved in speech are all brought into a condition of over-tension, particularly those of the larynx, and the vocal tone is often hard or husky. Muscles other than those of the organs of speech are also sometimes subject to contraction: thus with some stammerers there will be head jerks or grimaces, movements of the arms or legs, clenching of the fists and tight closing of the jaws.

The teacher can do much to ease this tension by giving a course of relaxation exercises and seeing that, particularly when he speaks, the child relaxes his muscles and stands easily and quietly.[1]

A third accompaniment of stammering is a faulty method of breathing. Stammerers often breathe in gasps or use up nearly all their breath before beginning to speak. The breathing exercises which can be found in any good book on Voice Production [2] serve to overcome this difficulty; and many doctors, for this, as for the control and relaxation of the muscles, urge outdoor exercise, particularly running, walking, skipping, as these bring into play many muscles which stimulate respiration.

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[1] A course of relaxation exercises will be found in the Delsarte Æsthetic Gymnastics, 1s. 2d. post free from The C. W. Daniel Co., 3 Tudor Street, E.C.4.

[2] Such as Dr. Aikin's *The Voice.*

A few exercises are added, as being suggestive though not exhaustive.

1. Stand, feet slightly apart, raise arms sideways to shoulder level, breathing in steadily through the nose. Breathe out steadily as the arms move slowly down again. Repeat this movement four times. Then stand at ease.
2. Stand, hold the ribs with both hands. Take a long slow breath, enlarging the chest in all directions, and drawing in the abdomen. Breathe out quickly through the mouth, letting the chest fall and the abdomen come out. Repeat this exercise, each time trying to take in more air and to expand the chest more, and in breathing out to make a stronger expulsion of the breath.
3. Breathe as in Exercise 2, this time letting the breath come out as slowly as possible. Repeat, trying to make the breath last longer and longer.
4. Breathe in slowly while raising the arms sideways to shoulder level. Turn the hands palms upwards holding the breath. Then breathe out slowly while the arms come down, palms outwards.
5. Breathe in slowly. Sing the vowel [ɑɪ] while the breath is coming out.
6. Repeat Exercise 5, trying to make the [ɑɪ] longer.
7. Repeat again, singing [ɑ] crescendo—diminuendo.

8. Breathe in slowly, sing [ɑɪ] on middle *c*, slide to high *c*. This is what Dr. Scripture[1] calls the *octave-twist*, a device he urges strongly for two reasons. It gives flexibility to the voice, and in addition it helps to relax the muscles of speech, for, in passing from *c* to c^1, the voice changes from chest to head register. The stammerer generally uses a chest note in speaking, and if he can be taught to pass from the chest to the head note, it follows that he must readjust the muscles, *i.e.* he must relax the muscles of the chest register, and consequently stop the cramp which gives rise to the stammer, and set up a new adjustment which controls the head register. It will probably take him some time to do this: he will want to stop before he reaches the octave, still trying to use the chest note. He must be trained until it is easy to reach the full octave.

Exercises in speech which should help the stammerer

The most usual cases of stammering are those in which the patient either makes a prolonged *stop* on, or a number of repetitions of the plosive consonants [p, b, t, d, k, g]; for instance he says *b– – –ack* or *b–b–b–back*, *p– – –in* or *p–p–p–pin.*

1. When he is able to control his breath and his voice sufficiently to sing a long vowel, the pupil should be asked to sing [ɑɪ] or [oɪ], on a tone that suits him best, or at as low

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[1] *Stuttering and Lisping.* Published by Macmillan and Co.

a pitch as he can comfortably manage. While singing this, let him bring his lips together, somewhat loosely, into the position for [m], without interrupting the steady tone of the vowel [ɑ––– mɑ––– mɑ, o––– mo––– mo–––]. He should not pay too much attention to the consonant, but should concentrate on keeping the vowel tone steady. This exercise can be done with different vowel sounds, to give variety. Next, let him do the same thing with [l]: if necessary show him how to raise the tip of his tongue to the teeth-ridge for the [l]: this will give [ɑ––– lɑ––– lɑ–––, o––– lo––– lo–––]. Again he must concentrate on the vowel sound, and make the contact of tongue on teeth-ridge very lightly. All the voiced continuant consonants can be treated in the same way, taking them in the following order [m, n, ŋ, l, v, ð, z, ʒ, r].

2. The second step is to teach him to use the voiceless equivalents to some of these consonants. This is a much more difficult thing to achieve. They should be practised very gently at first, with the slightest possible interruption in the voice, and articulated as lightly as possible:
   [ɑ––– fɑ––– fɑ–––, ɑ––– θɑ––– θɑ–––, o––– so––– so–––, o––– ʃo––– ʃo–––].
3. The stops, which cause the chief difficulty, will need considerable care. The method of dealing with them is similar to that

explained in Exercise 1: that is, the pupil must sing a vowel sound and while singing it bring the lips together momentarily for [b]. The contact of the lips should be very slight and the pupil should think that he is singing the vowel all the time. The result of this will be that the consonant is very indistinct. This stage must be prolonged for some time; the teacher must be in no hurry to make the pupil say the consonants distinctly. Then [b], [d] and [g] should be practised in the same way. When this can be done *with ease*, the voiceless stops [p, t, k] should be tried. It should then be the aim of the teacher to make the pupil say these sounds without aspiration: they should resemble their voiced equivalents [b, d, g] more than they do in normal English speech, and should not sound like [phɑ, thɑ, khɑ]. If the latter happens, the pupil is using up too much of the breath from the lungs, and he will not have enough left for the vowel sounds.

Another common form of stammering is the inability to begin a word with an initial vowel. This is due to spasmodic closure of the glottis[1] and the effect is that the pupil says [ʔᵊʔᵊʔᵊɑːftə] for "after."

4. The best way to get rid of this when the spasm occurs is to make the pupil breathe in. He

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[1] The space between the vocal chords.

will have to be taught to pronounce each initial vowel with [h] in front of it; and he should practise exercises on all the vowels in this way: [hɑ– – –, hi– – –, he– – –, hu– – –], etc. This method will probably have to continue for some time, until the fear of not being able to pronounce the initial vowels is overcome. Then it ought to be possible gradually to reduce the amount of aspiration until a normal initial vowel is arrived at.

5. Sometimes a stammerer finds it difficult to pronounce a word beginning with the semi-vowels [w] and [j] (see p. 17); he says "w–w–was" or "y–y–yes." If he remembers that in the formation of these sounds he is merely gliding from one vowel position to another, his difficulty should grow less. Let him practise [uː– – –ɔz] for "was," and [iː– – –es] for "yes," gradually increasing the speed of the glide, and if there is any difficulty in speaking an initial vowel, prefixing [h] to it.

6. As soon as the pupil can sing any combination of vowel and consonant, the intoning should be dropped, and an exaggerated drawling speech should be substituted. He can now begin to use words and sentences in the drawling tone, and gradually the drawl can be replaced by a more normal manner of speech.

CHAPTER VII

CAUSES OF SPEECH DEFECTS

THE main types of speech defect dealt with in this book can be accounted for in various ways, and a brief survey of how they arise may be of interest to teachers, and may enable them to arrest tendencies to such speech in the early stages. Only those defects which are *not* due to organic malformation are considered here.

Speech is a function to which we are so accustomed that we give little thought as to how it comes to us, how it develops with the growing child, and what physical and mental actions are concerned in it. It is only when we come to some disturbance of speech and try to realise what is wrong, and still more when we try to put it right, that we find out what an extremely complex thing speech development is.

A brief account of the development of speech in the child may show where speech defects are likely to creep in. In the early months the child begins to differentiate sounds, and by the time he is nearly a year old, he associates words he hears with objects and ideas, and to a certain extent understands what is said to him. He is at the babbling stage: he makes noises of all kinds, cooing and babbling spontaneously, and unconsciously exercising his organs of articulation. But just as at first he cannot control the vague movements of fingers and toes, so he has little command over the movements of his speech mechanism. The next stage is that he begins to co-ordinate these speech movements that he makes into copies of what he hears: he is definitely trying now to imitate the sounds he hears around him, the sounds and combinations of sounds his mother or nurse repeats over and over again. It is noticeable that in the babbling stage he often makes sounds which do not belong to his mother-tongue, and as he learns to imitate, these are gradually dropped. Then he begins to express his elementary wants by articulate speech, in words, short phrases and sentences. After this the child's speech development goes by leaps and bounds, and it is believed that by the time he is three years old he has a vocabulary of some hundreds of words.

"Baby talk," where the child cannot make all the sounds of his own language, is a necessary stage in speech development, but baby talk should be left behind by the age of four to five years. During this stage, the centres of the brain which control the speech functions are being trained. The constant hearing of sounds gradually trains the auditory centre of the brain, and the child begins to appreciate and recognise the differences between them: the early attempts at imitation train that centre of the brain which controls the movements of his tongue, lips, etc., until the child has full command over them and can say any sound he hears. If these two centres are not defective;

and if the child's language environment is such as to provide him with good models, his speech development is normal. After a time he is not satisfied with his first faulty attempts, and helped by the corrections and repetitions of his mother or nurse, he begins to find that his pronunciation of [jʌn] for "run," of [tʌm] for "come," of [pɪtɪ] for "pretty" are not correct, and he tries out other ways of saying these words until he hits on the right one, and his ear is satisfied. During this stage the auditory centre and the motor centre generally work together, and the faulty hearing and faulty reproductions of sounds become less and less until no trace of baby talk remains.

If the child is not corrected, if he has a bad language environment, the stage of baby talk may be prolonged; if there happens to be natural weakness in these brain centres, some trace of baby talk may remain, from a wrong *s* or a wrong *r* in the slight cases of defect to unintelligible speech caused by many wrongly articulated consonants in the worst cases. It is generally admitted by doctors that unintelligible speech of this kind—pronounced "lalling"—is often a sign of lack of intelligence, and the frequency of speech defects among mentally deficient children proves this, but it is not always so, and the present writer has come across cases where there was no lack of intelligence, though the speech was very bad. In such cases it seems that there is weakness in the two speech centres, and that if tackled in the right way these centres can be trained and the child will learn to talk. But he does not do it naturally—he has to be taught. Most of the cases dealt with by the present writer have been cases of "lalling," from the minor defects of one consonant to severe cases where nearly all the consonants were wrong. And it is in the hope that the teacher may be able to deal with the less severe cases that this chapter is written.

It is generally found that speech defects of this kind follow certain definite rules. One consonant substituted for another bears some relation to the correct one, either acoustically or in organic formation or both, e.g. in a [t] substitution for [k] a plosive consonant articulated with the tip of the tongue is used for one articulated with the back of the tongue; in a [l̥] or [θ] substitution for [s], there is an acoustic similarity between the two sounds.[1] A child who goes on saying [l̥] or [θ] for [s] is satisfied with the similarity and does not hear the dissimilarity. When the sound is one which does not occur in the mother-tongue, it is less likely to be corrected because the mother or teacher does not recognise what it is. This is why [l̥] for [s] is comparatively common in grown-ups, while [θ] for [s] is extremely rare: in the latter case both sounds occur in English, distinguishing words ("sin," [sɪn]; "thin," [θɪn]), while in the former case [l̥] is a "foreign" sound, and the mother or teacher does not recognise it, and often jumps to the conclusion that the child is afflicted with some physical disability, and cannot pronounce an [s]. Gradually, then, the habit of the wrong sound is fixed; the victim himself and his immediate family grow so accustomed to it that they do not notice it, and if in later life an attempt is made to alter it, the difficulty of effecting a cure is considerable.

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[1] Jespersen says that it is possible to speak of "sound laws" governing childish consonant substitution (*Language: its Nature and Origin.* 1923).

An Account of a Case Treated

To illustrate some of the statements made in this chapter a description of a case treated is added.

K. was a boy of five years old, very bright and intelligent, whose speech was unintelligible. Most of his consonants were replaced by [p] or [t], though he could say [m, n, l, f, v]. There was no [k, ɡ, ŋ, s] or [r]. His articulation of those consonants which he could pronounce was very vigorous and clear. The primary difficulty seemed to be to *hear* the consonants and distinguish one from another. With this point in view, the first step was to train him to hear and recognise the difference between [p] and [t] (and [b] and [d]), both of which he could say, but which he used indiscriminately. He was learning to read in the infant school and knew his letters (or sounds), so a game was devised for him to guess which of the two sounds was made in the syllables *pa*, *ta*: he also made them for the instructor to "guess." Very soon it was possible to teach him to make [k], and then *ka* was added. He soon acquired the power of recognising these in any order and in making them in any order indicated, and quite quickly, e.g. [pɑ, tɑ, kɑ; kɑ, tɑ, pɑ; tɑ, pɑ, kɑ; kɑ, pɑ, tɑ; pɑ, kɑ, tɑ; tɑ, kɑ, pɑ].

The next step was to use these sounds finally, and real words were introduced, such as: "cap," "lap," "nap," "tap," "cat," "pat," "tart," "back," "pack," "lack," "tack." Comparatively quickly he could mix up these words and say and recognise "tack," "pat," "cat," "cap," "pack," etc. This exercise was, of course, varied with as many different combinations of vowel and consonant as made words which the child could understand, and the "play" element was introduced as much as possible. But in the first stages of this type of case, as, indeed, of all types of speech defect correction, the present writer finds it best to begin with meaningless syllables, since by this means the old association of real words pronounced wrongly is broken, and the pupil is likely to learn the use of new sounds much more quickly where there is no such association. The same plan was carried out successfully with the remaining consonants after their correct articulation had been taught. After the child had had about eight lessons from the present writer, an extremely able infants' teacher carried on the work. K. was seen a year later and his sounds were perfect and his articulation very clear.

This case is one of several that have come under the observation of the present writer, which seems to be an illustration of weakness primarily of the auditory centre of the brain, and secondarily of the motor centre, with no sign of mental deficiency. Such cases are well worth the time and effort spent on them.

Note on Speech Training for Mentally Defective Children

The writer of this book was given permission by the London County Council in 1923–4 to examine the speech of 166 mentally defective children, mostly boys.[1] The following percentages were worked out. Of the whole number, 7.2 per cent had very bad defective speech; 12 per cent had marked defects; 25.9 per cent had slight defects. Only seven children had physical defects such as to influence speech, and there were five stammerers.

There is no doubt that speech training of a scientific character can be made of the utmost value to children of this type. The present writer has lectured to teachers of mentally defective children on speech training, and in the course of these lectures has demonstrated methods on children in occupational centres. As a result of this, and of experience in treating individuals of a low order of intelligence, she is led to think that much could be done to improve speech. The children responded so well that further exercises devised on the lines suggested in this book must have produced good results. She is also convinced that not only is the speech improved by such exercises, but that the control obtained through them has also appeared to strengthen the brain and stimulate mental action generally. Writers on mental deficiency support this view. Dr. Tredgold, in *Mental Deficiency*, says: "In the minor degrees (of mental defect) the training of speech, if conducted on scientific principles and after a careful study of the needs of the individual, is a very important means of improving sensory and motor functions, and regulating mental action generally." In *Mentally Deficient Children* by Shuttleworth and Potts, the following statement is found: "Training in speech is, indeed, a valuable means of fixing the attention and cultivating muscular co-ordination, and in these respects, as well as for its specific effect, may be regarded as a valuable adjuvant to other educational measures."

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[1] An article on this work was published in the *Special Schools Quarterly*, September 1924.

Further Notes on Cases

O. was a boy of fifteen, a similar case to K. described in Chapter VII., only in this case the weakness seemed to be more in the motor centre than in the auditory centre. All his speech actions were sluggish, and the training was long and needed much patience and perseverance.

P. was a girl of twenty with a [l̥]-lisp of a noticeable variety. She had been sent by a speech trainer to a dentist, who said he could take out her bottom teeth, but was "not sure whether it would be any good." She was cured in one month after four or five lessons of fifteen minutes each.

X. was a student at a training college, who said she "had an organ missing." No physical defect.

Y. was a student applying for admission to a training college who was said to have a cleft palate. She was examined and there was no malformation. The lecturer in phonetics gave her some lessons, and after a winter's work she was accepted for admittance to the college.

Z. was an extraordinary case: a woman of about twenty-five, who could make herself understood if she put a monkey-nut on her tongue! (She carried a supply in her pocket). Otherwise she curled her tongue up before trying to speak and was unintelligible. The first efforts at correction were directed towards making her keep her tongue down, first with and afterwards without mechanical aid. Unfortunately she tired of the effort necessary and ceased to come for treatment before she had done very much.

Q. was a man of thirty who had had slight infantile paralysis. A most interesting case. All his speech movements were sluggish and he had to be taught practically all the sounds. After he had learned to make them, there was great difficulty in passing from one to another. He needed a long course, but managed to gain considerable control over the speech organs and to speak with fair ease and a much greater degree of intelligibility.

DIAGRAMS

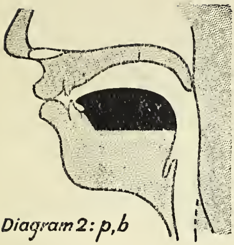

Diagram 2: p,b

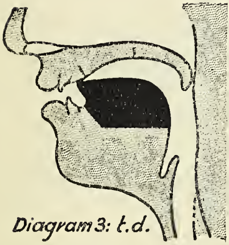

Diagram 3: t.d.

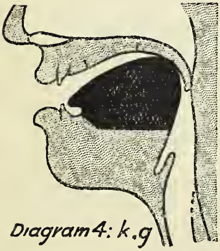

Diagram 4: k.g

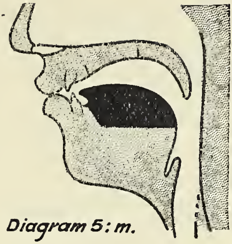

Diagram 5: m.

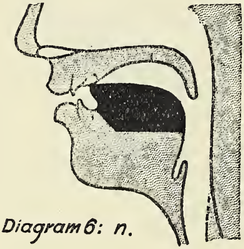

Diagram 6: n.

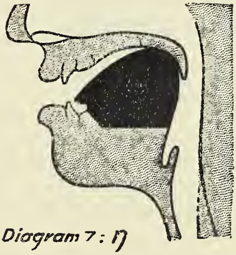

Diagram 7 : ŋ

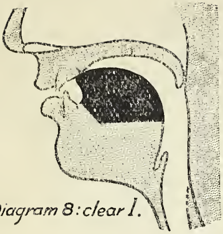

Diagram 8: clear l.

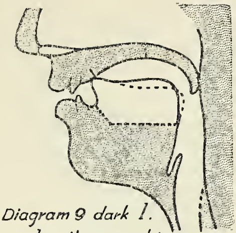

Diagram 9 dark l.
__ l with u quality
..... l " ɔ "

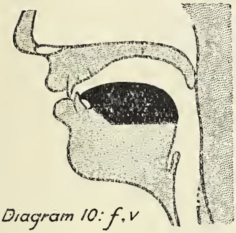

Diagram 10: f, v

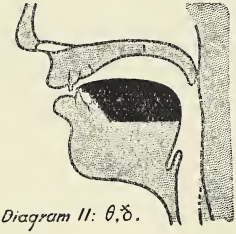

Diagram 11: θ, ð.

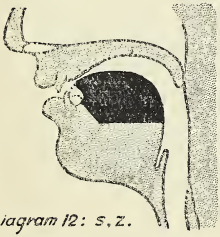

Diagram 12: s, z.
...... s, z with tip of tongue behind bottom teeth.

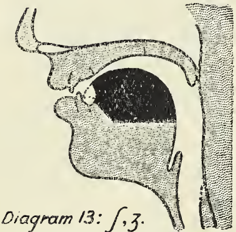

Diagram 13: ʃ, ʒ.
..... ʃ, ʒ with tip of tongue behind bottom teeth.

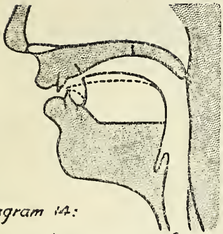

Diagram 14:

—— position of tongue for S
...... " " " " θ

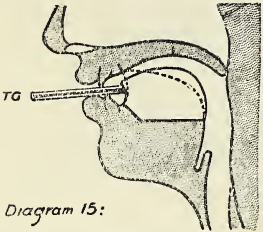

Diagram 15:

—— position of tongue for S
...... " " " " , l̥

T.G tongue guide preventing tip of tongue from assuming position between teeth as for θ

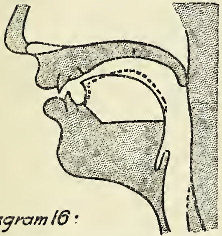

Diagram 16:

——position of tongue for S
.... " " " " ʃ

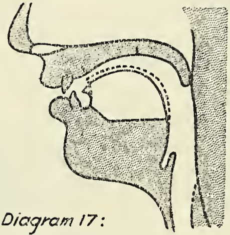

Diagram 17:

——position of tongue for i
.,..tip of tongue raised giving ʃ

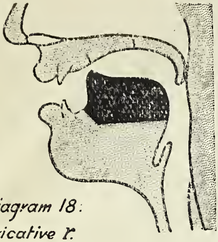

Diagram 18:
Fricative r.

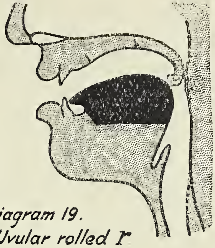

Diagram 19.
Uvular rolled r

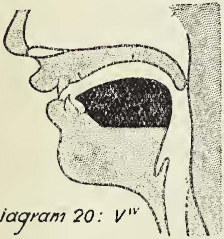

Diagram 20: V^{w}

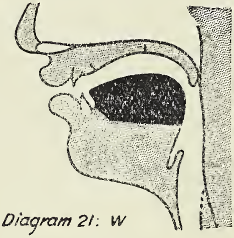

Diagram 21: w

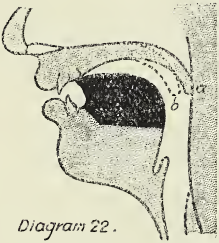

Diagram 22.

a position of soft palate for t
b " " " " " n

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